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ual for the classification of the common English trees, based upon their flowers and inflorescences. The willows are treated separately in an appendix. Tables are there given for the classification of willows when pistillate or stamine catkins are alone available.

The book is concluded with a copious glossary which defines the technical terms necessarily used in a book of this sort.

H. S. R.

Notes.—Dr. Scott's Wilde lecture on the "Early History of Seed-bearing Plants as Recorded in the Carboniferous Flora" is published, with illustrations, in vol. 49, part 3, of the *Memoirs and Proceedings of the Manchester Literary and Philosophical Society*.

The classification of Monocotyledons is further discussed by Delpino in series 5, vol. 10, of the *Memorie della R. Accademia delle Scienze* of Bologna.

A short illustrated note on the bark characters of trees, by Peet, is contained in *The Country Calendar* for November, 1905.

An address on plant morphology and taxonomy, by Kraemer, is published in the *American Journal of Pharmacy* for September, 1905.

A paper on contractile vacuoles and the frothy structure of protoplasm, by Degen, forms Heft 9–11, Abteilung 1, of the *Botanische Zeitung* for 1905.

Lindemuth (*Die Gartenwelt*, Oct. 28, 1905) has propagated Rex begonias from the leaves with long petioles. The petiole strikes root from the base and produces a crown of leaves at the tip. The petiole undergoes no great modification in form or structure except to increase somewhat in size but it may function as the stem of the plant for a long period of time.

The influence of color in floral ecology is analyzed in a paper by Delpino forming part of series 6, vol. 1, of the *Memoire della R. Accademia delle Scienze* of Bologna.

Studies on the composition and metabolism of apples, by Bigelow, Gore, and Howard, form *Bulletin 94* of the Bureau of Chemistry, U. S. Department of Agriculture.

The influence of environment upon the composition of the sugar beet is discussed by Wiley in *Bulletin 95* of the Bureau of Chemistry, U. S. Department of Agriculture.

The variability of wheat varieties in resistance to toxic salts is the subject of *Bulletin 79* of the Bureau of Plant Industry, U. S. Department of Agriculture.

A paper on the vitality of buried seeds, by Duvel, forms *Bulletin 83* of the Bureau of Plant Industry, U. S. Department of Agriculture.

A mechanical study of thistle-down as a parachute is published by Dandeno in *Science* of November 3, 1905.

Figures of some natural tree grafts are published by M. P. Wheeler in *The American Inventor* for November.

An analysis of the plant geography of Canada, by Drummond, appears in vol. 8, part 1, of the *Transactions of the Canadian Institute*.

Plants characterizing the life zones of Texas are listed by Bailey in *North American Fauna*, no. 25.

The forest conditions of the Gila River Forest Reserve, N. M., are discussed by Rixon in *Professional Paper 39* of the U. S. Geological Survey.

A note on G. J. Graham and his Mexican collections of 1827-9 is published by Britten in *The Journal of Botany* for November.

A popular account of Mexican vegetation, with instructive habit photographs, is published by Purpus in *Möller's Deutsche Gärtner-Zeitung* of October 7.

Five new Mexican flowering plants are described by Rose in no. 1427 of the *Proceedings of the U. S. National Museum*; a new monotypic genus (*Harperia*) of Umbelliferæ and a new *Zizia*, from Georgia, are described by the same author in no. 1428 of the same publication, and Rose and House describe three Mexican violets (one new) in the succeeding no. 1429.

Part 7 of Captain J. Donnell Smith's *Enumeratio Plantarum Guatemalensis* has recently been distributed by the author.

The grasslands of the South Alaska coast are discussed by Piper in *Bulletin 82* of the Bureau of Plant Industry, U. S. Department of Agriculture.

The relations of the floras of the Northern Atlantic, the Polar Sea, and the Northern Pacific are considered by Simmons in Bd. 19, Heft 1, of the second Abteilung of *Beihefte zum botanischen Centralblatt*.

De Wildeman has begun the publication, through the Government of the État Indépendant du Congo, of an illustrated enumeration of the plants collected by Laurent during his Congo mission of 1903-04.

Important papers on Australasian botany are contained in current issues of *Proceedings of the Linnean Society of New South Wales* and the biological section of the *Reports of the Australasian Association for the Advancement of Science*.

Ridley has papers on Gesneraceæ of the Malay Peninsula, Aroids of Borneo, and New and Little-known Malayan Plants — II, in no. 44 of the *Journal of the Straits Branch of the Royal Asiatic Society*, issued in July last.

Cooke's *Flora of the Presidency of Bombay*, in vol. 2, part 2, issued in July last, reaches into the Verbenaceæ.

Schlotterbeck and Blome contribute a paper on the chemistry of *Bocconia cordata* to the *Pharmaceutical Review* for October, 1905.

A morphological and anatomical study of *Claytonia*, by Holm, forms vol. 10, no. 2, of the *Memoirs of the National Academy of Sciences*.

Britten publishes a note on *Cliftonia* in *The Journal of Botany* for October, 1905.

Interesting statistics of the cotton production and valuation of the world are furnished by Watkins in *Bulletin 34* of the Bureau of Statistics, U. S. Department of Agriculture.

An account of "Cratægus in Eastern Pennsylvania," distributed by Sargent on September 22 from the *Proceedings of the Academy of Natural Sciences of Philadelphia* for 1905, gives keys to the groups and species represented, of which latter 82, with 3 distinct varieties, are included,— 46 of the species being described as new.

A paper on *Opuntia*, by Berger, is contained in Engler's *Botanische Jahrbücher* of November 10, 1905.

Townsendia wilcoxiana is figured in vol. 5, fascicle 3, of *Icones Selectæ Horti Thenensis*.

Antennaria neodioica gaspensis is a new form from eastern Quebec, described by Fernald in *The Ottawa Naturalist* for November.

Power and Barrowcliff discuss the seed constituents of *Hydnocarpus* and *Gynocardia* in nos. 54 and 55, respectively, of the publications of the Wellcome Chemical Research Laboratories, of London.

An illustrated account of *Solanum commersonii* is contained in *Gartenflora* of September 1, 1905.

A chemical analysis of *Tecoma mollis*, by Kebler and Seidell, forms Circular 24 of the Bureau of Chemistry, U. S. Department of Agriculture.

Illustrated articles on mangroves are contributed by J. A. Dimock and A. W. Dimock to *Country Life in America* for November, 1905.

Warburg gives an account of Phthirusa and Strutanthus—the mistletoes of rubber—in *Der Tropenplanzer* for November, 1905.

Five additional species, and two varieties, are added to the hitherto monotypic genus Osmaronia by Greene in the concluding signature of *Pittonia*, vol. 5.

Habit figures of *Grammatophyllum speciosum*, a giant orchid, are given by Ridley in the May number of the *Agricultural Bulletin of the Straits and Federated Malay States*.

The somewhat aberrant nomenclature needs of orchid hybrids are discussed by Bohlmann in *Die Gartenwelt* of November 11, 1905.

The Xanthosomas cultivated under the name Yautia form the subject of *Bulletin 6* of the Porto Rico Agricultural Experiment Station, issued in English and Spanish.

No. 24 of Holm's "Studies in the Cyperaceæ," published in *The American Journal of Science* for September, 1905, deals with new or little known Carices from northwest America.

A well illustrated monograph of the wild and cultivated grasses of Iowa, by Pammel, Ball, and Lamson-Scribner, forming part 2 of "The Grasses of Iowa," has been issued as a *Supplementary Report of the Iowa Geological Survey*.

"Poa and its Commercial Fruit Characters" is the subject of *Bulletin 84* of the Bureau of Plant Industry, U. S. Department of Agriculture by Brown and Hillman.

Cavendish reports, in *The Indian Forester* for August, that after an interval of some 30 years *Dendrocalamus hamiltonii* has flowered throughout the Assam district in the wholesale fashion characteristic of the bamboos.

The storage and germination of *Zizania* seed is the subject of *Bulletin 90, part 1*, of the Bureau of Plant Industry, U. S. Department of Agriculture.

A Spanish hybrid of *Juniperus phœnicea* and *J. communis* is described by Cadeval y Diars in vol. 5, no. 12, of the current series of *Memorias de la Real Academia de Ciencias y Artes de Barcelona*.

The third and concluding volume of Braithwaite's *British Moss Flora* has recently appeared from Reeve's of London.

A new *Index Filicum*, by Christensen, is being issued in fascicles from the Hagerup press of Copenhagen. All of the pteridophyte names published from 1753 to 1905 are included, the treatment being much as in the *Index Kewensis* devoted to spermatophytes.

An extensive paper on the anatomy of *Acrostichum aureum* is published by Ethel A. Thomas in *The New Phytologist* of October 25, 1905.

A new fern (*Polystichum krugii*) from Porto Rico is described by Maxon in the *Proceedings of the Biological Society of Washington* for October 17, 1905.

Laing contributes a revised list of New Zealand seaweeds, and the first part of an account of the Ceramiaceæ of the island, to vol. 37 of the *Transactions and Proceedings of the New Zealand Institute*,—which contains numerous other botanical papers of interest.

A series of 64 unusually good three-color plates illustrates Dumée's *Nouvel Atlas de Poche des Champignons Comestibles et Vénéneux*, recently published by Klincksieck of Paris.

Publication no. 28 of the Bureau of Government Laboratories, Manila, consists of papers by Copeland on "The Polypodiaceæ of the Philippine Islands" and "New Species of Edible Philippine Fungi."

Under the title *Die Pilze von Tirol, Vorarlberg, und Lichtenstein*, Magnus has published, through the Wagner press of Innsbruck, a volume of 716 pages containing an account of over 3500 species, with bibliography, notes on synonymy, habitat, etc. The very full indexes alone occupy over 100 pages.

A voluminous catalogue of the fungi of the Low Countries, by the venerable Oudemans, constitutes vol. 12 of the second section of *Verhandelingen der Koninklijke Akademie van Wetenschappen* of Amsterdam.

An account of Norwegian Hymenomycetes, begun by Blytt and finished by Rostrup, has been separately issued from the *Videnskabs-Selskabets Skrifter* of Christiania, for 1904.

Guzmán enumerates 40 Salvadorean oil plants, cultivated or wild, in vol. 2, no. 14, of the *Anales del Museo Nacional* of El Salvador.

The destructive occurrence of *Trametes pini* in India is noted by Mayes in *The Indian Forester* for July, 1905.

Mushroom-growing and tissue-culture spawn production are described by Duggar in *Bulletin 85* of the Bureau of Plant Industry, U. S. Department of Agriculture.

A twin specimen of *Geaster forniciatus* is figured in the *Gardeners' Chronicle* of November 4, 1905.

The nuclear and sexual phenomena of Phyllactinia and other mildews are described by Harper in the recently issued *Publication no. 37 of the Carnegie Institution of Washington*.

A paper on the Monoblepharideæ, by Woronin, forms vol. 16, no. 4, of the *Mémoires de l'Académie Impériale des Sciences de St. Pétersbourg*.

A note on the Tuberaceæ of Portugal is published by Mattirolo in the *Atti della R. Accademia dei Lincei, Roma*, of October 15, 1905.

Uncinula conidiigena is the name of a new parasite of *Populus tremula*, described and figured by Cocconi in series 5, vol. 10, of the *Memorie della R. Accademia delle Scienze* of Bologna.

Uromycladium is the name proposed by McAlpine for a genus of South Pacific leguminous rusts, related to *Uromyces* and *Ravenelia*, in *Annales Mycologici* for August, 1905.

The Japanese species of *Uromyces* on *Sophora* and *Cladrastis* are analyzed by Kusano in the (Tokyo) *Botanical Magazine* of August 20, 1905.

An account of endophytic adaptation shown by *Erysiphe graminis* under cultural conditions, is given by Salmon in vol. 198, series B, of the *Philosophical Transactions of the Royal Society of London*.

Diachava cylindrica, a new Pennsylvanian species, is described by Bilgram in the current volume of *Proceedings of the Academy of Natural Sciences of Philadelphia*.

In a brochure recently issued from the Engelmann press of Leipzig, von Guttenberg considers the physiological anatomy of the galls produced by fungi.

Wheat improvement is considered by Lyon, in *Bulletin 78* of the Bureau of Plant Industry, U. S. Department of Agriculture.

The well known odor of moldy straw and hay is ascribed to a *Streptothrix* by Brocq-Rousseau in the *Revue Générale de Botanique* for October 15, 1905.

Hedgecock, in *Bulletin 90, part 2*, of the Bureau of Plant Industry, U. S. Department of Agriculture, differentiates the prevalent "crown gall" of apple trees into crown gall proper, and "hairy-root." The second is found not to be contagious, and the contagiousness of the first is not demonstrated.

A paper on the indigenous calabashes of Mexico, the Ayotli of Hernandez, is published in vol. 1, no. 2, of the *Anales de la Academia Mexicana*.

An illustrated article on Burbank and his work, by Honoria Tuomey, is contained in *Out West* for September, 1905.

Britten and Woodward have published some interesting correspondence concerning L'Heritier in recent numbers of *The Journal of Botany*.

Another of Fraser's Catalogues — this for 1796 — is reprinted in *The Journal of Botany* for November, 1905.

The recently issued 1904-05 *Report of the Government Botanist* for the Cape of Good Hope shows that the Cape herbarium now contains 44,189 sheets of specimens, of which 25,400 represent the Cape flora,— some 3000 of these being type sheets left by Harvey.

A new publication of the Tiflis Botanical Garden has been begun, under the title *Moniteur du Jardin Botanique de Tiflis*.

A series of illustrated articles on the London botanical gardens is being published by Perrédès in current numbers of the *American Journal of Pharmacy*.

A well illustrated account of the botanical garden at Buitenzorg is contributed by Ramaley to *The Popular Science Monthly* of November.

The Carnegie Laboratory at Tucson is described by Wittmack in *Gartenflora* of October 15, 1905.

An account of Dr. Kunze and his cactus collection, by Willey, is contained in *The American Inventor* for October, 1905.

Karasek gives an illustrated account of vegetation in the gardens of German Africa, in the *Wiener illustrierte Gartenzeitung* for November, 1905.

The Journals.—*The Botanical Gazette*, September:—Blakeslee, “Two Conidia-bearing Fungi”; Mottier, “The Development of the Heterotypic Chromosomes in Pollen Mother Cells”; Livingston, “Relation of Transpiration to Growth in Wheat”; Arthur, “Rusts on Compositæ from Mexico”; Shattuck, “A Morphological Study of *Ulmus americana*”; Billings, “Preliminary Leaf-serrations of *Ulmus*”; Sheldon, “The Effect of Different Soils on the Development of the Carnation Rust.”

The Botanical Gazette, October:—McCallum, “Regeneration in Plants—II”; Brown, “A Botanical Survey of the Huron River Valley—III”; Lyon, “The Spore Coats of Selaginella”; Schneider, “Contributions to the Biology of Rhizobia—V”; Eckerson, “The Physiological Constants of Plants Commonly used in American Botanical Laboratories—I”; Kraemer, “Further Observations on the Structure of the Starch Grain.”

The Botanical Gazette, November:—Peirce and Randolph, “Studies of Irritability in Algae”; Transeau, “The Bogs and Bog Flora of the Huron River Valley”; Ball, “Notes on North American Willows—I.”

The Bryologist, November:—Haynes, “*Telaranea nematodes longij-folia*”; Sargent, “Lichenology for Beginners—IV”; Chamberlain, “Some Common Errors”; Hill, “*Encalypta procera*”; Merrill, “Lichen Notes—I”; Holzinger, “A Note on Local Moss Distribution.”

Bulletin of the Torrey Botanical Club, September:—Harper, “Phytogeographical Explorations in the Coastal Plain of Georgia in 1904”; Murrill, “The Polyporaceæ of North America—XII, A Synopsis of the White and Bright Colored Pileate Species”; MacKenzie, “*Onosmodium*.”

Bulletin of the Torrey Botanical Club, October:—Cannon, “A New Method of Measuring the Transpiration of Plants in Place”; Harris, “The Fruit of *Opuntia*”; Abrams, “Studies on the Flora of Southern California”; Piper, “*Agropyron tenerum* and its Allies”; Cushman, “The Desmid Flora of Nantucket.”

The Fern Bulletin, July:—Clute, “Species and Varieties among the Ferns”; Gilbert, “Observations on North American Pterido-